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OM protein - protein search, using sw model

Run on: June 18, 2003, 03:16:37 ; Search time 37.0454 Seconds
(without alignments)
1215.770 Million cell updates/sec

Title: US-09-807-933B-7
Perfect score: 1826
Sequence: 1 MKFTVAITSIAVALALSSSA.....TFKEVTCPAELTTRSGCERK 338

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
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22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	1826	100.0	338	21	AAB09824	Endoglucanase prot
2	1826	100.0	338	23	AAO15055	Rhizopus arrhizus
3	1826	100.0	338	23	ABB08063	M. circinelloides
4	1791.5	98.1	387	21	AAB09825	Endoglucanase prot
5	1791.5	98.1	387	23	AAO15056	Rhizopus arrhizus
6	1791.5	98.1	387	23	ABB08064	M. circinelloides
7	1247	68.3	338	21	AAB09821	Endoglucanase prot
8	1247	68.3	338	23	AAO15052	Rhizopus arrhizus
9	1247	68.3	338	23	ABB08060	R. oryzae CP96001
10	1209	66.2	360	21	AAB09823	Endoglucanase prot
11	1209	66.2	360	23	AAO15054	Rhizopus arrhizus
12	1209	66.2	360	23	ABB08062	R. oryzae CP96001
13	1202	65.8	366	21	AAB09822	Endoglucanase prot
14	1202	65.8	366	23	AAO15053	Rhizopus arrhizus
15	1202	65.8	366	23	ABB08061	R. oryzae CP96001
16	1197	65.6	346	21	AAB09826	Endoglucanase prot
17	1197	65.6	346	23	AAO15057	Phycomyces nitens
18	1197	65.6	346	23	ABB08065	P. nitens CP99002
19	966.5	52.9	245	23	AAO15063	Endoglucanase-rela
20	946	51.8	228	23	AAO15062	Endoglucanase-rela
21	769.5	42.1	299	17	AAW04928	Cellulytic enzyme
22	769.5	42.1	299	19	AAW63624	Monocomponent endo
23	768.5	42.1	306	19	AAW44270	Hybrid DNA protein
24	767.5	42.0	225	21	AAY84798	Amino acid sequenc
25	767.5	42.0	225	22	ABB05057	Chrysosporium C1 s
26	762.5	41.8	200	19	AAW53979	Thielavia terrestr
27	761.5	41.7	225	17	AAW04925	Cellulytic enzyme
28	761.5	41.7	297	17	AAW04933	Chimeric endogluca
29	761.5	41.7	308	17	AAW04934	Chimeric endogluca
30	760.5	41.6	200	19	AAW53967	Sordaria fimicola
31	754.5	41.3	200	19	AAW53968	Thielavia terrestr
32	753.5	41.3	204	19	AAW53970	Myceliophthora the
33	740	40.5	223	23	AAO15070	Humicola insolens
34	740	40.5	223	23	AAG80602	Humicola insolens
35	735	40.3	349	17	AAW04927	Cellulytic enzyme
36	729.5	40.0	306	19	AAW44269	Hybrid DNA protein
37	727.5	39.8	304	19	AAW44272	Hybrid DNA protein
38	725	39.7	307	19	AAW44273	Hybrid DNA protein
39	722.5	39.6	202	19	AAW53972	Macrophomina phase
40	722.5	39.6	222	17	AAW04929	Cellulytic enzyme
41	722.5	39.6	294	17	AAW04937	Chimeric endogluca
42	718	39.3	305	19	AAW44854	Humicola insolens
43	718	39.3	305	19	AAW41929	Humicola insolens
44	717	39.3	234	19	AAW46618	Humicola insolens
45	717	39.3	286	19	AAW57420	Humicola insolens

ALIGNMENTS

RESULT 1
AAB09824
ID AAB09824 standard; Protein; 338 AA.
XX
AC AAB09824;
XX
DT 25-SEP-2000 (first entry)
XX
DE Endoglucanase protein sequence 4.
XX
KW Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW animal foodstuff.
XX
OS Mucor circinelloides.
XX
PN WO200024879-A1.
XX
PD 04-MAY-2000.
XX
PF 25-OCT-1999; 99WO-JP05884.
XX
PR 23-OCT-1998; 98JP-0302387.
XX
PA (MEIJ) MEIJI SEIKA KAISHA LTD.
XX
PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
XX
DR WPI; 2000-365117/31.
DR N-PSDB; AAA62729.
XX
PT Endoglucanases of fungal origin with high activity under alkaline
PT conditions for production of paper pulp and animal feedstuffs -

```
XX
PS   Claim 44; Page 120-122; 180pp; Japanese.
XX
CC   This sequence represents an endoglucanase protein. The invention relates
CC   to an endoglucanase of fungal origin which can completely break down
CC   purified cellulose at a concentration of less than 1mg protein/litre,
CC   and produces more than 50% breakdown of cellulose at pH 8.5. The
CC   invention includes endoglucanase protein sequences (see
CC   AAB09825-B09830), endoglucanase nucleotide sequences (see
CC   AAA62726-A62732) and primers (AAA62733-A62802) which are used in the
CC   identification of the endoglucanase sequences, and in the construction of
CC   vectors containing the polynucleotides. The endoglucanase enzymes are
CC   used for the production of pulp for papermaking and for the production of
CC   animal foodstuffs.
XX
SQ   Sequence   338 AA;

  Query Match             100.0%;  Score 1826;  DB 21;  Length 338;
  Best Local Similarity   100.0%;  Pred. No. 3.7e-128;
  Matches  338;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MKFTVAITSIAVALALSSSAEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYSQ 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MKFTVAITSIAVALALSSSAEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYSQ 60

Qy         61 CLPGSHSNNAGNASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTST 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 CLPGSHSNNAGNASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTST 120

Qy        121 SSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSG 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 SSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSG 180

Qy        181 CNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQ 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 CNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQ 240

Qy        241 VTNTGGDLGSNHFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSDCASLPSALQ 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 VTNTGGDLGSNHFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSDCASLPSALQ 300

Qy        301 AGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338
              ||||||||||||||||||||||||||||||||||||||
Db        301 AGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338


RESULT 2
AAO15055
ID   AAO15055 standard; Protein; 338 AA.
XX
AC   AAO15055;
XX
DT   22-AUG-2002  (first entry)
XX
DE   Rhizopus arrhizus endoglucanase-related protein 4.
XX
KW   Zygomycetes-originated endoglucanase; cellulose binding domain;
KW   fibre processing; waste paper de-inking; paper pulp.
XX
OS   Mucor circinelloides.
XX
PN   WO200242474-A1.
XX
PD   30-MAY-2002.
XX
PF   21-NOV-2001; 2001WO-JP10188.
XX
PR   21-NOV-2000; 2000JP-0354296.
XX
PA   (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
PI   Nakane A,  Baba Y,  Koga J,  Kubota H;
XX
DR   WPI; 2002-471729/50.
DR   N-PSDB; AAL43247.
XX
PT   Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
PT   with effect of endoglucanase activity enhanced in processing fibers,
PT   deinking waste paper and improving freeness of paper pulp  -
XX
PS   Claim 5; Page 68-70; 109pp; Japanese.
XX
CC   The invention comprises the amino acid and coding sequences of
CC   zygomycetes-originated endoglucanase enzymes lacking the cellulose
CC   binding domain. The zygomycetes-originated endoglucanase enzymes of the
CC   invention have enhanced endoglucanase activity. The zygomycetes-
CC   originated endoglucanase enzymes of the invention are useful for
CC   processing fibres, de-inking waste paper and improving the freeness of
CC   paper pulp - which is particularly applicable in detergent compositions.
CC   The present amino acid sequence represents an endoglucanase-related
CC   protein of the invention.
XX
SQ   Sequence   338 AA;

  Query Match             100.0%;  Score 1826;  DB 23;  Length 338;
  Best Local Similarity   100.0%;  Pred. No. 3.7e-128;
  Matches  338;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MKFTVAITSIAVALALSSSAEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYSQ 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MKFTVAITSIAVALALSSSAEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYSQ 60

Qy         61 CLPGSHSNNAGNASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTST 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 CLPGSHSNNAGNASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTST 120

Qy        121 SSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSG 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 SSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSG 180

Qy        181 CNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQ 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 CNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQ 240

Qy        241 VTNTGGDLGSNHFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSDCASLPSALQ 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 VTNTGGDLGSNHFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSDCASLPSALQ 300

Qy        301 AGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338
              ||||||||||||||||||||||||||||||||||||||
Db        301 AGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338


RESULT 3
ABB08063
ID   ABB08063 standard; protein; 338 AA.
XX
AC   ABB08063;
XX
DT   27-AUG-2002  (first entry)
XX
DE   M. circinelloides CP99001 MCEI protein.
XX
KW   Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
KW   pulp treatment; MCEI.
XX
OS   Mucor circinelloides.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..22
FT                   /note= "signal peptide"
FT   Protein         23..338
FT                   /note= "mature protein"
XX
PN   WO200238754-A1.
XX
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PD   16-MAY-2002.
XX
PF   12-NOV-2001; 2001WO-JP09858.
XX
PR   10-NOV-2000; 2000JP-0343921.
XX
PA   (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
PI   Koga J,  Nakane A,  Baba Y,  Kono T;
XX
DR   WPI; 2002-471555/50.
XX
PT   Cellulase preparations containing transconjugant-originated
PT   endoglucanase and non-ionic surfactants, useful in detergent
PT   compositions, in treating cellulose fibers and deinking waste paper and
PT   improving freeness of paper pulp  -
XX
PS   Claim 3; Page 27-29; 38pp; Japanese.
XX
CC   The invention relates to a cellulase preparation comprising a
CC   transconjugant-originated endoglucanase and a non-ionic surfactant. The
CC   endoglucanase is selected from RCEI, RCEII, RCEII, MCEI, MCEII or PCEI
CC   proteins. The preparations are useful in detergent compositions, in
CC   treating cellulose fibers and deinking waste paper and improving the
CC   freeness of paper pulp. The fibers treated by the preparations have
CC   reduced feathering and improved skin-feel and appearance with colour
CC   clarification, local change in colour and softening, and after deinking
CC   and paper pulp treatment, there is an improvement on freeness of the
CC   paper pulp. This treatment with the cellulase preparation can be operated
CC   at significantly lower cost. The present sequence represents the
CC   M. circinelloides CP99001 MCEI protein.
XX
SQ   Sequence   338 AA;

  Query Match             100.0%;  Score 1826;  DB 23;  Length 338;
  Best Local Similarity   100.0%;  Pred. No. 3.7e-128;
  Matches  338;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MKFTVAITSIAVALALSSSAEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYSQ 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MKFTVAITSIAVALALSSSAEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYSQ 60

Qy         61 CLPGSHSNNAGNASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTST 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 CLPGSHSNNAGNASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTST 120

Qy        121 SSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSG 180
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Db        121 SSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSG 180

Qy        181 CNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQ 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 CNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQ 240

Qy        241 VTNTGGDLGSNHFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSDCASLPSALQ 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 VTNTGGDLGSNHFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSDCASLPSALQ 300

Qy        301 AGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338
              ||||||||||||||||||||||||||||||||||||||
Db        301 AGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338


RESULT 4
AAB09825
ID   AAB09825 standard; Protein; 387 AA.
XX
AC   AAB09825;
XX
DT   25-SEP-2000  (first entry)
XX
DE   Endoglucanase protein sequence 5.
XX
KW   Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW   animal foodstuff.
XX
OS   Phycomyces nitens.
XX
PN   WO200024879-A1.
XX
PD   04-MAY-2000.
XX
PF   25-OCT-1999;   99WO-JP05884.
XX
PR   23-OCT-1998;   98JP-0302387.
XX
PA   (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
PI   Nakamura Y,  Moriya T,  Baba Y,  Yanai K,  Sumida N,  Nishimura T;
PI   Murashima K,  Nakane A,  Yaguchi T,  Koga J,  Murakami T,  Kono T;
XX
DR   WPI; 2000-365117/31.
DR   N-PSDB; AAA62730.
XX
PT   Endoglucanases of fungal origin with high activity under alkaline
PT   conditions for production of paper pulp and animal feedstuffs  -
XX
PS   Claim 44; Page 125-127; 180pp; Japanese.
XX
CC   This sequence represents an endoglucanase protein. The invention relates
CC   to an endoglucanase of fungal origin which can completely break down
CC   purified cellulose at a concentration of less than 1mg protein/litre,
CC   and produces more than 50% breakdown of cellulose at pH 8.5. The
CC   invention includes endoglucanase protein sequences (see
CC   AAB09825-B09830), endoglucanase nucleotide sequences (see
CC   AAA62726-A62732) and primers (AAA62733-A62802) which are used in the
CC   identification of the endoglucanase sequences, and in the construction of
CC   vectors containing the polynucleotides. The endoglucanase enzymes are
CC   used for the production of pulp for papermaking and for the production of
CC   animal foodstuffs.
XX
SQ   Sequence   387 AA;

  Query Match             98.1%;  Score 1791.5;  DB 21;  Length 387;
  Best Local Similarity   87.3%;  Pred. No. 1.6e-125;
  Matches  338;  Conservative    0;  Mismatches    0;  Indels   49;  Gaps    1;

Qy          1 MKFTVAITSIAVALALSSSAEAASCSSVYG----------------------------- 30
              ||||||||||||||||||||||||||||||
Db          1 MKFTVAITSIAVALALSSSAEAASCSSVYGQCGGIGWTGPTCCDAGSTCKAQKDNKYYSQ 60

Qy         31 ------------------QCGGIGWSGPTCCESGSTCVAQEGNKYYSQCLPGSHSNNAG 71
                                 ||||||||||||||||||||||||||||||||||||||||||
Db         61 CIPKPKGSSSSSSCSSVYSQCGGIGWSGPTCCESGSTCVAQEGNKYYSQCLPGSHSNNAG 120

Qy         72 NASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTSTSSSAGYKVISG 131
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 NASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTSTSSSAGYKVISG 180

Qy        132 GKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSGCNGGNGFMCNN 191
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSGCNGGNGFMCNN 240

Qy        192 NQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQVTNTGGDLGSN 251
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Db        241 NQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQVTNTGGDLGSN 300

Qy        252 HFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSDCASLPSALQAGCKWRFNWFK 311
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Qy        312 NSDNPTMTFKEVTCPAELTTRSGCERK 338
              ||||||||||||||||||||||||||
Db        361 NSDNPTMTFKEVTCPAELTTRSGCERK 387
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RESULT 5
AAO15056
ID   AAO15056 standard; Protein; 387 AA.
XX
AC   AAO15056;
XX
DT   22-AUG-2002  (first entry)
XX
DE   Rhizopus arrhizus endoglucanase-related protein 5.
XX
KW   Zygomycetes-originated endoglucanase; cellulose binding domain;
KW   fibre processing; waste paper de-inking; paper pulp.
XX
OS   Mucor circinelloides.
XX
PN   WO200242474-A1.
XX
PD   30-MAY-2002.
XX
PF   21-NOV-2001; 2001WO-JP10188.
XX
PR   21-NOV-2000; 2000JP-0354296.
XX
PA   (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
PI   Nakane A,  Baba Y,  Koga J,  Kubota H;
XX
DR   WPI; 2002-471729/50.
DR   N-PSDB; AAL43248.
XX
PT   Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
PT   with effect of endoglucanase activity enhanced in processing fibers,
PT   deinking waste paper and improving freeness of paper pulp -
XX
PS   Claim 5; Page 73-75; 109pp; Japanese.
XX
CC   The invention comprises the amino acid and coding sequences of
CC   zygomycetes-originated endoglucanase enzymes lacking the cellulose
CC   binding domain. The zygomycetes-originated endoglucanase enzymes of the
CC   invention have enhanced endoglucanase activity. The zygomycetes-
CC   originated endoglucanase enzymes of the invention are useful for
CC   processing fibres, de-inking waste paper and improving the freeness of
CC   paper pulp - which is particularly applicable in detergent compositions.
CC   The present amino acid sequence represents an endoglucanase-related
CC   protein of the invention.
XX
SQ   Sequence   387 AA;

  Query Match             98.1%;  Score 1791.5;  DB 23;  Length 387;
  Best Local Similarity   87.3%;  Pred. No. 1.6e-125;
  Matches  338;  Conservative    0;  Mismatches    0;  Indels   49;  Gaps    1;

Qy          1 MKFTVAITSIAVALALSSSAEAASCSSVYG---------------------------- 30
              |||||||||||||||||||||||||||||||
Db          1 MKFTVAITSIAVALALSSSAEAASCSSVYGQCGGIGWTGPTCCDAGSTCKAQKDNKYYSQ 60

Qy         31 -------------------QCGGIGWSGPTCCESGSTCVAQEGNKYYSQCLPGSHSNNAG 71
                                  ||||||||||||||||||||||||||||||||||||||||
Db         61 CIPKPKGSSSSSSCSSVYSQCGGIGWSGPTCCESGSTCVAQEGNKYYSQCLPGSHSNNAG 120

Qy         72 NASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTSTSSSAGYKVISG 131
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 NASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTSTSSSAGYKVISG 180

Qy        132 GKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSGCNGGNGFMCNN 191
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSGCNGGNGFMCNN 240

Qy        192 NQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQVTNTGGDLGSN 251
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 NQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQVTNTGGDLGSN 300

Qy        252 HFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSDCASLPSALQAGCKWRFNWFK 311
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 HFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSDCASLPSALQAGCKWRFNWFK 360

Qy        312 NSDNPTMTFKEVTCPAELTTRSGCERK 338
              |||||||||||||||||||||||||||
Db        361 NSDNPTMTFKEVTCPAELTTRSGCERK 387


RESULT 6
ABB08064
ID   ABB08064 standard; protein; 387 AA.
XX
AC   ABB08064;
XX
DT   27-AUG-2002  (first entry)
XX
DE   M. circinelloides CP99001 MCEII protein.
XX
KW   Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
KW   pulp treatment; MCEII.
XX
OS   Mucor circinelloides.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..22
FT                   /note= "signal peptide"
FT   Protein         23..387
FT                   /note= "mature protein"
XX
PN   WO200238754-A1.
XX
PD   16-MAY-2002.
XX
PF   12-NOV-2001; 2001WO-JP09858.
XX
PR   10-NOV-2000; 2000JP-0343921.
XX
PA   (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
PI   Koga J,  Nakane A,  Baba Y,  Kono T;
XX
DR   WPI; 2002-471555/50.
XX
PT   Cellulase preparations containing transconjugant-originated
PT   endoglucanase and non-ionic surfactants, useful in detergent
PT   compositions, in treating cellulose fibers and deinking waste paper and
PT   improving freeness of paper pulp -
XX
PS   Claim 3; Page 29-31; 38pp; Japanese.
XX
CC   The invention relates to a cellulase preparation comprising a
CC   transconjugant-originated endoglucanase and a non-ionic surfactant. The
CC   endoglucanase is selected from RCEI, RCEII, RCEII, MCEI, MCEII or PCEI
CC   proteins. The preparations are useful in detergent compositions, in
CC   treating cellulose fibers and deinking waste paper and improving the
CC   freeness of paper pulp. The fibers treated by the preparations have
CC   reduced feathering and improved skin-feel and appearance with colour
CC   clarification, local change in colour and softening, and after deinking
CC   and paper pulp treatment, there is an improvement on freeness of the
CC   paper pulp. This treatment with the cellulase preparation can be operated
CC   at significantly lower cost. The present sequence represents the
CC   M. circinelloides CP99001 MCEII protein.
XX
SQ   Sequence   387 AA;

  Query Match             98.1%;  Score 1791.5;  DB 23;  Length 387;
  Best Local Similarity   87.3%;  Pred. No. 1.6e-125;
  Matches  338;  Conservative    0;  Mismatches    0;  Indels   49;  Gaps    1;

Qy          1 MKFTVAITSIAVALALSSSAEAASCSSVYG---------------------------- 30
              |||||||||||||||||||||||||||||||
Db          1 MKFTVAITSIAVALALSSSAEAASCSSVYGQCGGIGWTGPTCCDAGSTCKAQKDNKYYSQ 60
```

```
Qy         31 ------------------QCGGIGWSGPTCCESGSTCVAQEGNKYYSQCLPGSHSNNAG 71
                              ||||||||||||||||||||||||||||||||||||||||||||
Db         61 CIPKPKGSSSSSSCSSVYSQCGGIGWSGPTCCESGSTCVAQEGNKYYSQCLPGSHSNNAG 120

Qy         72 NASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTSTSSSAGYKVISG 131
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 NASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAASTSTSSSAGYKVISG 180

Qy        132 GKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSGCNGGNGFMCNN 191
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLLDANAQSGCNGGNGFMCNN 240

Qy        192 NQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQVTNTGGDLGSN 251
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 NQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASGKKMVVQVTNTGGDLGSN 300

Qy        252 HFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSDCASLPSALQAGCKWRFNWFK 311
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 HFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSDCASLPSALQAGCKWRFNWFK 360

Qy        312 NSDNPTMTFKEVTCPAELTTRSGCERK 338
              ||||||||||||||||||||||||||
Db        361 NSDNPTMTFKEVTCPAELTTRSGCERK 387
```

RESULT 7
AAB09821
ID AAB09821 standard; Protein; 338 AA.
XX
AC AAB09821;
XX
DT 25-SEP-2000 (first entry)
XX
DE Endoglucanase protein sequence 1.
XX
KW Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW animal foodstuff.
XX
OS Rhizopus oryzae.
XX
PN WO200024879-A1.
XX
PD 04-MAY-2000.
XX
PF 25-OCT-1999; 99WO-JP05884.
XX
PR 23-OCT-1998; 98JP-0302387.
XX
PA (MEIJ) MEIJI SEIKA KAISHA LTD.
XX
PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
XX
DR WPI; 2000-365117/31.
DR N-PSDB; AAA62726.
XX
PT Endoglucanases of fungal origin with high activity under alkaline
PT conditions for production of paper pulp and animal feedstuffs -
XX
PS Claim 44; Page 106-108; 180pp; Japanese.
XX
CC This sequence represents an endoglucanase protein. The invention relates
CC to an endoglucanase of fungal origin which can completely break down
CC purified cellulose at a concentration of less than 1mg protein/litre,
CC and produces more than 50% breakdown of cellulose at pH 8.5. The
CC invention includes endoglucanase protein sequences (see
CC AAB09825-B09830), endoglucanase nucleotide sequences (see
CC AAA62726-A62732) and primers (AAA62733-A62802) which are used in the
CC identification of the endoglucanase sequences, and in the construction of
CC vectors containing the polynucleotides. The endoglucanase enzymes are
CC used for the production of pulp for papermaking and for the production of
CC animal foodstuffs.
XX

SQ Sequence 338 AA;

Query Match 68.3%; Score 1247; DB 21; Length 338;
Best Local Similarity 65.4%; Pred. No. 5e-85;
Matches 227; Conservative 40; Mismatches 62; Indels 18; Gaps 6;

```
Qy          1 MKFTVAITSIAVALALSSS-AEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYS 59
              |||    :|  :|||| :  | || || :||||||  |:||||||||||  :  | |||
Db          1 MKFITIASSALLALALGTEMASAAECSKLYGQCGGKNWNGPTCCESGSTC--KVSNDYYS 58

Qy         60 QCLPGSHSNNAGNASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAAST- 118
              ||||   | |  : |: |||:|      |        ||    ||||    ||:| | |||
Db         59 QCLPSGSSGNKSSESAHKKTTTAAHKKT-------TTAAHKKTTTAPAKKTTTVAKASTP 111

Qy        119 ---STSSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLL-D 174
                 |:|||  |  :||| ||:| ||||||||||||||||||:|: || :|  :|:: | |
Db        112 SNSSSSSSGKYSAVSGGASGNGVTTRYWDCCKASCSWPGKANVSSPVKSCNKDGVTALSD 171

Qy        175 ANAQSGCNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASG 234
              :|||||||||| :|||:|||||||| ||||||||:|:|  |: ||| |:|||||| : :|
Db        172 SNAQSGCNGGNSYMCNDNQPWAVNDNLAYGFAAAAISGGGESRWCCSCFELTFTSTSVAG 231

Qy        235 KKMVVQVTNTGGDLGSN---HFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSD 291
              |||||||||||||||:   |||||||||||||||::||||||||:||||:|| ||
Db        232 KKMVVQVTNTGGDLGSSTGAHFDLQMPGGGVGIFNGCSSQWGAPNDGWGSRYGGISSASD 291

Qy        292 CASLPSALQAGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338
              |:|||||||||||||||:|||:||:|||||  |:|  ::||  ||
Db        292 CSSLPSALQAGCKWRFNWFKNADNPSMTYKEVTCPKEITAKTGCSRK 338
```

RESULT 8
AAO15052
ID AAO15052 standard; Protein; 338 AA.
XX
AC AAO15052;
XX
DT 22-AUG-2002 (first entry)
XX
DE Rhizopus arrhizus endoglucanase-related protein 1.
XX
KW Zygomycetes-originated endoglucanase; cellulose binding domain;
KW fibre processing; waste paper de-inking; paper pulp.
XX
OS Rhizopus arrhizus.
XX
PN WO200242474-A1.
XX
PD 30-MAY-2002.
XX
PF 21-NOV-2001; 2001WO-JP10188.
XX
PR 21-NOV-2000; 2000JP-0354296.
XX
PA (MEIJ) MEIJI SEIKA KAISHA LTD.
XX
PI Nakane A, Baba Y, Koga J, Kubota H;
XX
DR WPI; 2002-471729/50.
DR N-PSDB; AAL43244, AAL43250.
XX
PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
PT with effect of endoglucanase activity enhanced in processing fibers,
PT deinking waste paper and improving freeness of paper pulp -
XX
PS Claim 5; Page 54-55; 109pp; Japanese.
XX
CC The invention comprises the amino acid and coding sequences of
CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
CC invention have enhanced endoglucanase activity. The zygomycetes-
CC originated endoglucanase enzymes of the invention are useful for
CC processing fibres, de-inking waste paper and improving the freeness of

```
CC   paper pulp - which is particularly applicable in detergent compositions.
CC   The present amino acid sequence represents an endoglucanase-related
CC   protein of the invention.
XX
SQ   Sequence   338 AA;

  Query Match             68.3%;  Score 1247;  DB 23;  Length 338;
  Best Local Similarity   65.4%;  Pred. No. 5e-85;
  Matches  227;  Conservative   40;  Mismatches   62;  Indels   18;  Gaps    6;

Qy          1 MKFTVAITSIAVALALSSS-AEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYS 59
              |||    :|  :|||| :  | || || :|||||| |:|||||||||| :  | |||
Db          1 MKFITIASSALLALALGTEMASAAECSKLYGQCGGKNWNGPTCCESGSTC--KVSNDYYS 58

Qy         60 QCLPGSHSNNAGNASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAAST- 118
              ||||   | |  : |: |||:|     |       ||    ||||    ||:| | |||
Db         59 QCLPSGSSGNKSSESAHKKTTTAAHKKT-------TTAAHKKTTTAPAKKTTTVAKASTP 111

Qy        119 ---STSSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLL-D 174
                 |:|||  |  :||| ||:| ||||||||||||||||:|: || :|  :|:: | |
Db        112 SNSSSSSSGKYSAVSGGASGNGVTTRYWDCCKASCSWPGKANVSSPVKSCNKDGVTALSD 171

Qy        175 ANAQSGCNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASG 234
              :|||||||||| :|||:|||||||| |||||||:|:|  |: ||| |:|||||| : :|
Db        172 SNAQSGCNGGNSYMCNDNQPWAVNDNLAYGFAAAAISGGGESRWCCSCFELTFTSTSVAG 231

Qy        235 KKMVVQVTNTGGDLGSN---HFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSD 291
              ||||||||||||||:   |||||||||||||||::|||||||||:|||:|| || :|
Db        232 KKMVVQVTNTGGDLGSSTGAHFDLQMPGGGVGIFNGCSSQWGAPNDGWGSRYGGISSASD 291

Qy        292 CASLPSALQAGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338
              |:|||||||||||||||||:|||:||:||||||  |:| ::|| ||
Db        292 CSSLPSALQAGCKWRFNWFKNADNPSMTYKEVTCPKEITAKTGCSRK 338


RESULT 9
ABB08060
ID   ABB08060 standard; protein; 338 AA.
XX
AC   ABB08060;
XX
DT   27-AUG-2002  (first entry)
XX
DE   R. oryzae CP96001 RCEI protein.
XX
KW   Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
KW   pulp treatment; RCEI.
XX
OS   Rhizopus oryzae.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..23
FT                   /note= "signal peptide"
FT   Protein         24..338
FT                   /note= "mature protein"
XX
PN   WO200238754-A1.
XX
PD   16-MAY-2002.
XX
PF   12-NOV-2001; 2001WO-JP09858.
XX
PR   10-NOV-2000; 2000JP-0343921.
XX
PA   (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
PI   Koga J,  Nakane A,  Baba Y,  Kono T;
XX
DR   WPI; 2002-471555/50.
XX
PT   Cellulase preparations containing transconjugant-originated
PT   endoglucanase and non-ionic surfactants, useful in detergent
PT   compositions, in treating cellulose fibers and deinking waste paper and
PT   improving freeness of paper pulp  -
XX
PS   Claim 3; Page 21-22; 38pp; Japanese.
XX
CC   The invention relates to a cellulase preparation comprising a
CC   transconjugant-originated endoglucanase and a non-ionic surfactant. The
CC   endoglucanase is selected from RCEI, RCEII, RCEII, MCEI, MCEII or PCEI
CC   proteins. The preparations are useful in detergent compositions, in
CC   treating cellulose fibers and deinking waste paper and improving the
CC   freeness of paper pulp. The fibers treated by the preparations have
CC   reduced feathering and improved skin-feel and appearance with colour
CC   clarification, local change in colour and softening, and after deinking
CC   and paper pulp treatment, there is an improvement on freeness of the
CC   paper pulp. This treatment with the cellulase preparation can be operated
CC   at significantly lower cost. The present sequence represents the
CC   R. oryzae CP96001 RCEI protein.
XX
SQ   Sequence   338 AA;

  Query Match             68.3%;  Score 1247;  DB 23;  Length 338;
  Best Local Similarity   65.4%;  Pred. No. 5e-85;
  Matches  227;  Conservative   40;  Mismatches   62;  Indels   18;  Gaps    6;

Qy          1 MKFTVAITSIAVALALSSS-AEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYS 59
              |||    :|  :|||| :  | || || :|||||| |:|||||||||| :  | |||
Db          1 MKFITIASSALLALALGTEMASAAECSKLYGQCGGKNWNGPTCCESGSTC--KVSNDYYS 58

Qy         60 QCLPGSHSNNAGNASSTKKTSTKTSTTTAKATATVTTKTVTKTTTKTTTKTSTTAAAST- 118
              ||||   | |  : |: |||:|     |       ||    ||||    ||:| | |||
Db         59 QCLPSGSSGNKSSESAHKKTTTAAHKKT-------TTAAHKKTTTAPAKKTTTVAKASTP 111

Qy        119 ---STSSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGPVDTCASNGISLL-D 174
                 |:|||  |  :||| ||:| ||||||||||||||||:|: || :|  :|:: | |
Db        112 SNSSSSSSGKYSAVSGGASGNGVTTRYWDCCKASCSWPGKANVSSPVKSCNKDGVTALSD 171

Qy        175 ANAQSGCNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCGCYELTFTSGAASG 234
              :|||||||||| :|||:|||||||| |||||||:|:|  |: ||| |:|||||| : :|
Db        172 SNAQSGCNGGNSYMCNDNQPWAVNDNLAYGFAAAAISGGGESRWCCSCFELTFTSTSVAG 231

Qy        235 KKMVVQVTNTGGDLGSN---HFDLQMPGGGVGIFNGCAAQWGAPNDGWGARYGGVSSVSD 291
              ||||||||||||||:   |||||||||||||||::|||||||||:|||:|| || :|
Db        232 KKMVVQVTNTGGDLGSSTGAHFDLQMPGGGVGIFNGCSSQWGAPNDGWGSRYGGISSASD 291

Qy        292 CASLPSALQAGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338
              |:|||||||||||||||||:|||:||:||||||  |:| ::|| ||
Db        292 CSSLPSALQAGCKWRFNWFKNADNPSMTYKEVTCPKEITAKTGCSRK 338


RESULT 10
AAB09823
ID   AAB09823 standard; Protein; 360 AA.
XX
AC   AAB09823;
XX
DT   25-SEP-2000  (first entry)
XX
DE   Endoglucanase protein sequence 3.
XX
KW   Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW   animal foodstuff.
XX
OS   Rhizopus oryzae.
XX
PN   WO200024879-A1.
XX
PD   04-MAY-2000.
XX
PF   25-OCT-1999;   99WO-JP05884.
XX
PR   23-OCT-1998;   98JP-0302387.
XX
PA   (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
```

PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
XX
DR WPI; 2000-365117/31.
DR N-PSDB; AAA62728.
XX
PT Endoglucanases of fungal origin with high activity under alkaline
PT conditions for production of paper pulp and animal feedstuffs -
XX
PS Claim 44; Page 115-117; 180pp; Japanese.
XX
CC This sequence represents an endoglucanase protein. The invention relates
CC to an endoglucanase of fungal origin which can completely break down
CC purified cellulose at a concentration of less than 1mg protein/litre,
CC and produces more than 50% breakdown of cellulose at pH 8.5. The
CC invention includes endoglucanase protein sequences (see
CC AAB09825-B09830), endoglucanase nucleotide sequences (see
CC AAA62726-A62732) and primers (AAA62733-A62802) which are used in the
CC identification of the endoglucanase sequences, and in the construction of
CC vectors containing the polynucleotides. The endoglucanase enzymes are
CC used for the production of pulp for papermaking and for the production of
CC animal foodstuffs.
XX
SQ Sequence 360 AA;

Query Match 66.2%; Score 1209; DB 21; Length 360;
Best Local Similarity 61.1%; Pred. No. 3.7e-82;
Matches 220; Conservative 42; Mismatches 76; Indels 22; Gaps 5;

```
Qy          1 MKFTVAITSIAVALALSSS-AEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYS 59
              |||    :|  :|||: :  | || ||  | ||||  | ||||||||||||    | :||
Db          1 MKFLTIASSAILALAVGTEMAHAAECSKAYYQCGGKNWDGPTCCESGSTCVDYPDNPFYS 60

Qy         60 QCLPGSHSNNAGNAS-------STKKTST----KTSTTTAKATATVTTKTVTKTT----- 103
              ||:|  :  :  :|       | |||:|    | :|||  :  | ||:   |||
Db         61 QCVPNENLTSTNKSSHKTTTTESAKKTTTTKGSKKTTTTEASKKTTTTEASKKTTTTEAS 120

Qy        104 --TKTTTKTSTTAAASTSTSSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGP 161
                | |||| ::|: :|:|:|:|  |  :||| ||:| ||||||||| |||||||| || |
Db        121 KKTTTTTKKASTSTSSSSSSASTNYSAVSGGASGNGETTRYWDCCKPSCSWPGKADVTSP 180

Qy        162 VDTCASNGISLLDANAQSGCNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCG 221
              | :|  :| :| | | |:|| ||: : ||:|||| |:|:|||||||||:| :|| |||
Db        181 VGSCNKDGKTLADNNTQNGCVGGSSYTCNDNQPWVVSDDLAYGFAAASISGGSEATWCCA 240

Qy        222 CYELTFTSGAASGKKMVVQVTNTGGDLGSN---HFDLQMPGGGVGIFNGCAAQWGAPNDG 278
              |:|||||  |  |||||||||| |||||   |||||||||||:|||| ||||| ||
Db        241 CFELTFTSTAVKGKKMVVQVTNTGSDLGSNTGAHFDLQMPGGGVGIYNGCATQWGAPTDG 300

Qy        279 WGARYGGVSSVSDCASLPSALQAGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338
              |||||||||| |||::|||||||||||||| ||||:||||||:|:||||  :| :||| ||
Db        301 WGARYGGVSSASDCSNLPSALQAGCKWRFGWFKNADNPTMTYKQVTCPKAITAKSGCSRK 360
```

RESULT 11
AAO15054
ID AAO15054 standard; Protein; 360 AA.
XX
AC AAO15054;
XX
DT 22-AUG-2002 (first entry)
XX
DE Rhizopus arrhizus endoglucanase-related protein 3.
XX
KW Zygomycetes-originated endoglucanase; cellulose binding domain;
KW fibre processing; waste paper de-inking; paper pulp.
XX
OS Rhizopus arrhizus.
XX
PN WO200242474-A1.
XX
PD 30-MAY-2002.
XX
PF 21-NOV-2001; 2001WO-JP10188.
XX
PR 21-NOV-2000; 2000JP-0354296.
XX
PA (MEIJ) MEIJI SEIKA KAISHA LTD.
XX
PI Nakane A, Baba Y, Koga J, Kubota H;
XX
DR WPI; 2002-471729/50.
DR N-PSDB; AAL43246.
XX
PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
PT with effect of endoglucanase activity enhanced in processing fibers,
PT deinking waste paper and improving freeness of paper pulp -
XX
PS Claim 5; Page 63-65; 109pp; Japanese.
XX
CC The invention comprises the amino acid and coding sequences of
CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
CC invention have enhanced endoglucanase activity. The zygomycetes-
CC originated endoglucanase enzymes of the invention are useful for
CC processing fibres, de-inking waste paper and improving the freeness of
CC paper pulp - which is particularly applicable in detergent compositions.
CC The present amino acid sequence represents an endoglucanase-related
CC protein of the invention.
XX
SQ Sequence 360 AA;

Query Match 66.2%; Score 1209; DB 23; Length 360;
Best Local Similarity 61.1%; Pred. No. 3.7e-82;
Matches 220; Conservative 42; Mismatches 76; Indels 22; Gaps 5;

```
Qy          1 MKFTVAITSIAVALALSSS-AEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYS 59
              |||    :|  :|||: :  | || ||  | ||||  | ||||||||||||    | :||
Db          1 MKFLTIASSAILALAVGTEMAHAAECSKAYYQCGGKNWDGPTCCESGSTCVDYPDNPFYS 60

Qy         60 QCLPGSHSNNAGNAS-------STKKTST----KTSTTTAKATATVTTKTVTKTT----- 103
              ||:|  :  :  :|       | |||:|    | :|||  :  | ||:   |||
Db         61 QCVPNENLTSTNKSSHKTTTTESAKKTTTTKGSKKTTTTEASKKTTTTEASKKTTTTEAS 120

Qy        104 --TKTTTKTSTTAAASTSTSSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGP 161
                | |||| ::|: :|:|:|:|  |  :||| ||:| ||||||||| |||||||| || |
Db        121 KKTTTTTKKASTSTSSSSSSASTNYSAVSGGASGNGETTRYWDCCKPSCSWPGKADVTSP 180

Qy        162 VDTCASNGISLLDANAQSGCNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCG 221
              | :|  :| :| | | |:|| ||: : ||:|||| |:|:|||||||||:| :|| |||
Db        181 VGSCNKDGKTLADNNTQNGCVGGSSYTCNDNQPWVVSDDLAYGFAAASISGGSEATWCCA 240

Qy        222 CYELTFTSGAASGKKMVVQVTNTGGDLGSN---HFDLQMPGGGVGIFNGCAAQWGAPNDG 278
              |:|||||  |  |||||||||| |||||   |||||||||||:|||| ||||| ||
Db        241 CFELTFTSTAVKGKKMVVQVTNTGSDLGSNTGAHFDLQMPGGGVGIYNGCATQWGAPTDG 300

Qy        279 WGARYGGVSSVSDCASLPSALQAGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338
              |||||||||| |||::|||||||||||||| ||||:||||||:|:||||  :| :||| ||
Db        301 WGARYGGVSSASDCSNLPSALQAGCKWRFGWFKNADNPTMTYKQVTCPKAITAKSGCSRK 360
```

RESULT 12
ABB08062
ID ABB08062 standard; protein; 360 AA.
XX
AC ABB08062;
XX
DT 27-AUG-2002 (first entry)
XX
DE R. oryzae CP96001 RCEIII protein.
XX
KW Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
KW pulp treatment; RCEIII.
XX
OS Rhizopus oryzae.
XX

```
FH   Key             Location/Qualifiers
FT   Peptide         1..23
FT                   /note= "signal peptide"
FT   Protein         24..360
FT                   /note= "mature protein"
XX
PN   WO200238754-A1.
XX
PD   16-MAY-2002.
XX
PF   12-NOV-2001; 2001WO-JP09858.
XX
PR   10-NOV-2000; 2000JP-0343921.
XX
PA   (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
PI   Koga J,  Nakane A,  Baba Y,  Kono T;
XX
DR   WPI; 2002-471555/50.
XX
PT   Cellulase preparations containing transconjugant-originated
PT   endoglucanase and non-ionic surfactants, useful in detergent
PT   compositions, in treating cellulose fibers and deinking waste paper and
PT   improving freeness of paper pulp  -
XX
PS   Claim 3; Page 25-27; 38pp; Japanese.
XX
CC   The invention relates to a cellulase preparation comprising a
CC   transconjugant-originated endoglucanase and a non-ionic surfactant. The
CC   endoglucanase is selected from RCEI, RCEII, RCEII, MCEI, MCEII or PCEI
CC   proteins. The preparations are useful in detergent compositions, in
CC   treating cellulose fibers and deinking waste paper and improving the
CC   freeness of paper pulp. The fibers treated by the preparations have
CC   reduced feathering and improved skin-feel and appearance with colour
CC   clarification, local change in colour and softening, and after deinking
CC   and paper pulp treatment, there is an improvement on freeness of the
CC   paper pulp. This treatment with the cellulase preparation can be operated
CC   at significantly lower cost. The present sequence represents the
CC   R. oryzae CP96001 RCEIII protein.
XX
SQ   Sequence   360 AA;

  Query Match             66.2%;  Score 1209;  DB 23;  Length 360;
  Best Local Similarity   61.1%;  Pred. No. 3.7e-82;
  Matches  220;  Conservative   42;  Mismatches   76;  Indels   22;  Gaps    5;

Qy          1 MKFTVAITSIAVALALSSS-AEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYS 59
              |||    :|  :|||: :  | || ||  | ||||  | ||||||||||||    | :||
Db          1 MKFLTIASSAILALAVGTEMAHAAECSKAYYQCGGKNWDGPTCCESGSTCVDYPDNPFYS 60

Qy         60 QCLPGSHSNNAGNAS-------STKKTST----KTSTTTAKATATVTTKTVTKTT----- 103
              ||:|  :  :   :|       | |||:|    | :|||  :  | ||:   |||
Db         61 QCVPNENLTSTNKSSHKTTTTESAKKTTTTKGSKKTTTTEASKKTTTTEASKKTTTTEAS 120

Qy        104 --TKTTTKTSTTAAASTSTSSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPGKASVTGP 161
                | |||| ::|: :|:|:|:|  |  :||| ||:| ||||||||| |||||||| || |
Db        121 KKTTTTTKKASTSTSSSSSSASTNYSAVSGGASGNGETTRYWDCCKPSCSWPGKADVTSP 180

Qy        162 VDTCASNGISLLDANAQSGCNGGNGFMCNNNQPWAVNDELAYGFAAASIAGSNEAGWCCG 221
              | :|  :| :| | | |:|| ||: : ||:|||| |:|:||||||||||:| :|| |||
Db        181 VGSCNKDGKTLADNNTQNGCVGGSSYTCNDNQPWVVSDDLAYGFAAASISGGSEATWCCA 240

Qy        222 CYELTFTSGAASGKKMVVQVTNTGGDLGSN---HFDLQMPGGGVGIFNGCAAQWGAPNDG 278
              |:|||||| |  |||||||||||| |||||   |||||||||||||:|||| ||||| ||
Db        241 CFELTFTSTAVKGKKMVVQVTNTGSDLGSNTGAHFDLQMPGGGVGIYNGCATQWGAPTDG 300

Qy        279 WGARYGGVSSVSDCASLPSALQAGCKWRFNWFKNSDNPTMTFKEVTCPAELTTRSGCERK 338
              |||||||||| |||::|||||||||||||| ||||:|||||||:|:||||  :| :||| ||
Db        301 WGARYGGVSSASDCSNLPSALQAGCKWRFGWFKNADNPTMTYKQVTCPKAITAKSGCSRK 360


RESULT 13
AAB09822
```

```
ID   AAB09822 standard; Protein; 366 AA.
XX
AC   AAB09822;
XX
DT   25-SEP-2000  (first entry)
XX
DE   Endoglucanase protein sequence 2.
XX
KW   Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW   animal foodstuff.
XX
OS   Rhizopus oryzae.
XX
PN   WO200024879-A1.
XX
PD   04-MAY-2000.
XX
PF   25-OCT-1999;   99WO-JP05884.
XX
PR   23-OCT-1998;   98JP-0302387.
XX
PA   (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
PI   Nakamura Y,  Moriya T,  Baba Y,  Yanai K,  Sumida N,  Nishimura T;
PI   Murashima K,  Nakane A,  Yaguchi T,  Koga J,  Murakami T,  Kono T;
XX
DR   WPI; 2000-365117/31.
DR   N-PSDB; AAA62727.
XX
PT   Endoglucanases of fungal origin with high activity under alkaline
PT   conditions for production of paper pulp and animal feedstuffs  -
XX
PS   Claim 44; Page 110-113; 180pp; Japanese.
XX
CC   This sequence represents an endoglucanase protein. The invention relates
CC   to an endoglucanase of fungal origin which can completely break down
CC   purified cellulose at a concentration of less than 1mg protein/litre,
CC   and produces more than 50% breakdown of cellulose at pH 8.5. The
CC   invention includes endoglucanase protein sequences (see
CC   AAB09825-B09830), endoglucanase nucleotide sequences (see
CC   AAA62726-A62732) and primers (AAA62733-A62802) which are used in the
CC   identification of the endoglucanase sequences, and in the construction of
CC   vectors containing the polynucleotides. The endoglucanase enzymes are
CC   used for the production of pulp for papermaking and for the production of
CC   animal foodstuffs.
XX
SQ   Sequence   366 AA;

  Query Match             65.8%;  Score 1202;  DB 21;  Length 366;
  Best Local Similarity   60.1%;  Pred. No. 1.2e-81;
  Matches  221;  Conservative   48;  Mismatches   67;  Indels   32;  Gaps    8;

Qy          1 MKFTVAITSIAVALALSSS-AEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYS 59
              |||    :|  :|||| :  | || || :||||||  |:||||||||||  :  | |||
Db          1 MKFITIITSSALLALALGTEMASAAKCSKLYGQCGGKDWNGPTCCESGSTC--KVSNDYYS 58

Qy         60 QCL-PGSHSNNAGNAS--------------------STKKTSTK--TSTTTAKATATVTT 96
              ||| | |: | :   |                    || | |    :    ::    |:
Db         59 QCLAPESNGNKSSECSKLYGQCGGKDWNGPTCCESGSTCKVSNDYYSQCLAPESNGNKTS 118

Qy         97 KTVTKTTTKT--TTKTSTTAAASTSTSSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPG 154
              ::  |||| |    : :||| || |::|| | ::||| ||:| ||||||||||||||||
Db        119 ESAHKTTTTTAPAKEITTTAKASNSSNSSGKYSIVSGGASGNGVTTRYWDCCKASCSWPG 178

Qy        155 KASVTGPVDTCASNGISLL-DANAQSGCNGGNGFMCNNNQPWAVNDELAYGFAAASIAGS 213
              ||:|: || :|  :|:: | |:| |||||||| :|||:|||||||| |||||||:|:|
Db        179 KANVSSPVKSCNKDGVTALSDSNVQSGCNGGNSYMCNDNQPWAVNDNLAYGFAAAAISGG 238

Qy        214 NEAGWCCGCYELTFTSGAASGKKMVVQVTNTGGDLGSN---HFDLQMPGGGVGIFNGCAA 270
              |: ||| |:|||||| : :|||||:|||||||||||:   |||||||||||||||||:
Db        239 GESRWCCSCFELTFTSTSVAGKKMVIQVTNTGGDLGSSTGAHFDLQMPGGGVGIFNGCSK 298

Qy        271 QWGAPNDGWGARYGGVSSVSDCASLPSALQAGCKWRFNWFKNSDNPTMTFKEVTCPAELT 330
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Db        299 QWGAPNDGWGSRYGGISSASDCSSLPSALQAGCKWRFNWFKNADNPSMTYKEVTCPKEIT 358

Qy        331 TRSGCERK 338
Db        359 AKTGCSRK 366
```

RESULT 14
AAO15053
ID AAO15053 standard; Protein; 366 AA.
XX
AC AAO15053;
XX
DT 22-AUG-2002 (first entry)
XX
DE Rhizopus arrhizus endoglucanase-related protein 2.
XX
KW Zygomycetes-originated endoglucanase; cellulose binding domain;
KW fibre processing; waste paper de-inking; paper pulp.
XX
OS Rhizopus arrhizus.
XX
PN WO200242474-A1.
XX
PD 30-MAY-2002.
XX
PF 21-NOV-2001; 2001WO-JP10188.
XX
PR 21-NOV-2000; 2000JP-0354296.
XX
PA (MEIJ) MEIJI SEIKA KAISHA LTD.
XX
PI Nakane A, Baba Y, Koga J, Kubota H;
XX
DR WPI; 2002-471729/50.
DR N-PSDB; AAL43245.
XX
PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
PT with effect of endoglucanase activity enhanced in processing fibers,
PT deinking waste paper and improving freeness of paper pulp -
XX
PS Claim 5; Page 58-60; 109pp; Japanese.
XX
CC The invention comprises the amino acid and coding sequences of
CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
CC invention have enhanced endoglucanase activity. The zygomycetes-
CC originated endoglucanase enzymes of the invention are useful for
CC processing fibres, de-inking waste paper and improving the freeness of
CC paper pulp - which is particularly applicable in detergent compositions.
CC The present amino acid sequence represents an endoglucanase-related
CC protein of the invention.
XX
SQ Sequence 366 AA;

 Query Match 65.8%; Score 1202; DB 23; Length 366;
 Best Local Similarity 60.1%; Pred. No. 1.2e-81;
 Matches 221; Conservative 48; Mismatches 67; Indels 32; Gaps 8;

```
Qy          1 MKFTVAITSIAVALALSSS-AEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYS 59
Db          1 MKFITITSSALLALALGTEMASAAKCSKLYGQCGGKDWNGPTCCESGSTC--KVSNDYYS 58

Qy         60 QCL-PGSHSNNAGNAS--------------------STKKTSTK--TSTTTAKATATVTT 96
Db         59 QCLAPESNGNKSSECSKLYGQCGGKDWNGPTCCESGSTCKVSNDYYSQCLAPESNGNKTS 118

Qy         97 KTVTKTTTKT--TTKTSTTAAASTSTSSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPG 154
Db        119 ESAHKTTTTTAPAKEITTTAKASNSSNSSGKYSIVSGGASGNGVTTRYWDCCKASCSWPG 178

Qy        155 KASVTGPVDTCASNGISLL-DANAQSGCNGGNGFMCNNNQPWAVNDELAYGFAAASIAGS 213
Db        179 KANVSSPVKSCNKDGVTALSDSNVQSGCNGGNSYMCNDNQPWAVNDNLAYGFAAAAISGG 238

Qy        214 NEAGWCCGCYELTFTSGAASGKKMVVQVTNTGGDLGSN---HFDLQMPGGGVGIFNGCAA 270
Db        239 GESRWCCSCFELTFTSTSVAGKKMVIQVTNTGGDLGSSTGAHFDLQMPGGGVGIFNGCSK 298

Qy        271 QWGAPNDGWGARYGGVSSVSDCASLPSALQAGCKWRFNWFKNSDNPTMTFKEVTCPAELT 330
Db        299 QWGAPNDGWGSRYGGISSASDCSSLPSALQAGCKWRFNWFKNADNPSMTYKEVTCPKEIT 358

Qy        331 TRSGCERK 338
Db        359 AKTGCSRK 366
```

RESULT 15
ABB08061
ID ABB08061 standard; protein; 366 AA.
XX
AC ABB08061;
XX
DT 27-AUG-2002 (first entry)
XX
DE R. oryzae CP96001 RCEII protein.
XX
KW Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
KW pulp treatment; RCEII.
XX
OS Rhizopus oryzae.
XX
FH Key Location/Qualifiers
FT Peptide 1..23
FT /note= "signal peptide"
FT Protein 24..366
FT /note= "mature protein"
XX
PN WO200238754-A1.
XX
PD 16-MAY-2002.
XX
PF 12-NOV-2001; 2001WO-JP09858.
XX
PR 10-NOV-2000; 2000JP-0343921.
XX
PA (MEIJ) MEIJI SEIKA KAISHA LTD.
XX
PI Koga J, Nakane A, Baba Y, Kono T;
XX
DR WPI; 2002-471555/50.
XX
PT Cellulase preparations containing transconjugant-originated
PT endoglucanase and non-ionic surfactants, useful in detergent
PT compositions, in treating cellulose fibers and deinking waste paper and
PT improving freeness of paper pulp -
XX
PS Claim 3; Page 23-24; 38pp; Japanese.
XX
CC The invention relates to a cellulase preparation comprising a
CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
CC endoglucanase is selected from RCEI, RCEII, RCEII, MCEI, MCEII or PCEI
CC proteins. The preparations are useful in detergent compositions, in
CC treating cellulose fibers and deinking waste paper and improving the
CC freeness of paper pulp. The fibers treated by the preparations have
CC reduced feathering and improved skin-feel and appearance with colour
CC clarification, local change in colour and softening, and after deinking
CC and paper pulp treatment, there is an improvement on freeness of the
CC paper pulp. This treatment with the cellulase preparation can be operated
CC at significantly lower cost. The present sequence represents the
CC R. oryzae CP96001 RCEII protein.
XX
SQ Sequence 366 AA;

Query Match 65.8%; Score 1202; DB 23; Length 366;
Best Local Similarity 60.1%; Pred. No. 1.2e-81;
Matches 221; Conservative 48; Mismatches 67; Indels 32; Gaps 8;

```
Qy          1 MKFTVAITSIAVALALSSS-AEAASCSSVYGQCGGIGWSGPTCCESGSTCVAQEGNKYYS 59
              |||   :|  :|||| :  | || || :||||||  |:||||||||||  :   | |||
Db          1 MKFITITSSALLALALGTEMASAAKCSKLYGQCGGKDWNGPTCCESGSTC--KVSNDYYS 58

Qy         60 QCL-PGSHSNNAGNAS--------------------STKKTSTK--TSTTTAKATATVTT 96
              ||| | |: | :   |                    || | |    :     :: •  |:
Db         59 QCLAPESNGNKSSECSKLYGQCGGKDWNGPTCCESGSTCKVSNDYYSQCLAPESNGNKTS 118

Qy         97 KTVTKTTTKT--TTKTSTTAAASTSTSSSAGYKVISGGKSGSGSTTRYWDCCKASCSWPG 154
              ::  |||| |    : :||| || |::||  | ::||| ||:| ||||||||||||||||
Db        119 ESAHKTTTTTAPAKEITTTAKASNSSNSSGKYSIVSGGASGNGVTTRYWDCCKASCSWPG 178

Qy        155 KASVTGPVDTCASNGISLL-DANAQSGCNGGNGFMCNNNQPWAVNDELAYGFAAASIAGS 213
              ||:|: || :|  :|:: | |:| |||||||| :|||:|||||||| |||||||:|:|
Db        179 KANVSSPVKSCNKDGVTALSDSNVQSGCNGGNSYMCNDNQPWAVNDNLAYGFAAAAISGG 238

Qy        214 NEAGWCCGCYELTFTSGAASGKKMVVQVTNTGGDLGSN---HFDLQMPGGGVGIFNGCAA 270
               |: ||| |:|||||| : :|||||:||||||||||:   |||||||||||||||||:
Db        239 GESRWCCSCFELTFTSTSVAGKKMVIQVTNTGGDLGSSTGAHFDLQMPGGGVGIFNGCSK 298

Qy        271 QWGAPNDGWGARYGGVSSVSDCASLPSALQAGCKWRFNWFKNSDNPTMTFKEVTCPAELT 330
              |||||||||:||||:|| |||:||||||||||||||||:|||:||:|||||| |:|
Db        299 QWGAPNDGWGSRYGGISSASDCSSLPSALQAGCKWRFNWFKNADNPSMTYKEVTCPKEIT 358

Qy        331 TRSGCERK 338
              ::|| ||
Db        359 AKTGCSRK 366
```

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Job time : 42.0454 secs